

*PSEUDOTHELPHUSA MEXICANA*, A NEW  
FRESHWATER CRAB FROM THE STATE OF GUERRERO, MEXICO  
(BRACHYURA: PSEUDOTHELPHUSIDAE)

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*Abstract.*—A new species of freshwater crab, *Pseudothelphusa mexicana*, from La Jolla Cave, in the State of Guerrero, Mexico, is described. It does not exhibit any external morphological modification for a troglotic habitat. Its affinity with *Pseudothelphusa granatensis* is discussed.

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In July 1983, and January and February 1984, 11 specimens (5 ♀, 6 ♂) of a previously undescribed freshwater crab were collected in La Jolla Cave, in the State of Guerrero, Mexico. They were captured in an isolated area in complete darkness 120 m from the cave's entrance after a 20 m vertical drop; this seems to restrict the distribution of the species to the deeper part of the cave. The presence of pseudothelphusid crabs in caves has already been reported. The genus *Typhlopseudothelphusa*, distributed from the south of Mexico to northern Guatemala, includes the only three species of truly troglotic American pseudothelphusids (Hobbs et al. 1977, Rodriguez 1982). *Typhlopseudothelphusa mocinoi* does not have pigmentation on either the carapace or the appendages, and the ocular peduncle lacks visual elements (Rioja 1952). Like the species described herein, *Tehuana complanata* (Rodriguez 1982), reported from a cave in the State of Veracruz, exhibits no obvious adaptations to the cave environment (Rodriguez and Smalley 1969, Hobbs et al. 1977).

*Pseudothelphusa mexicana*,  
new species  
Fig. 1

*Description.*—Front of carapace without defined superior border, but limited by epigastric lobes. Inferior frontal border well marked and smooth. Slightly arched me-

dian groove reaching mesogastric region visible in frontal view. Carapace convex, with smooth surface and small papillae regularly distributed. Cervical groove deep and curved, reaching anterolateral margin of carapace. Cardiac and metabranchial regions with shallow grooves. Anterolateral margin bearing small denticles from cervical groove to epibranchial region, number varying from 16 to 24. Margin between ocular orbit and cervical groove sinuous and without denticles. Ventral surface of carapace smooth except on pterygostomian region, which bears cylindrical setae. Ratio ischium/exopod of third maxilliped varying from 0.7 to 0.87, average 0.8. Chelipeds unequal, right chelae larger; dactyl and propodus curved inward. Fingers of major chelae in male gaping. Ocular peduncle and cornea well developed, carapace with brown pigmentation, walking legs and chelipeds similar to those of epigeal species.

*Gonopod description.*—In a caudal view the lateral process (fig. 24 in Rodriguez and Smalley 1969) changes to a caudal position at  $\frac{2}{3}$  of the length of the gonopod. Apex exhibiting well developed lateral lobe possessing 3 acute projections laterally oriented. Outer margin of mesial process curved and serrate, ending in rounded tip at about same level as projections of lateral lobe. Straight inner margin projecting toward median front portion of the apical cavity, without joining lateral lobe. Superior lobe re-

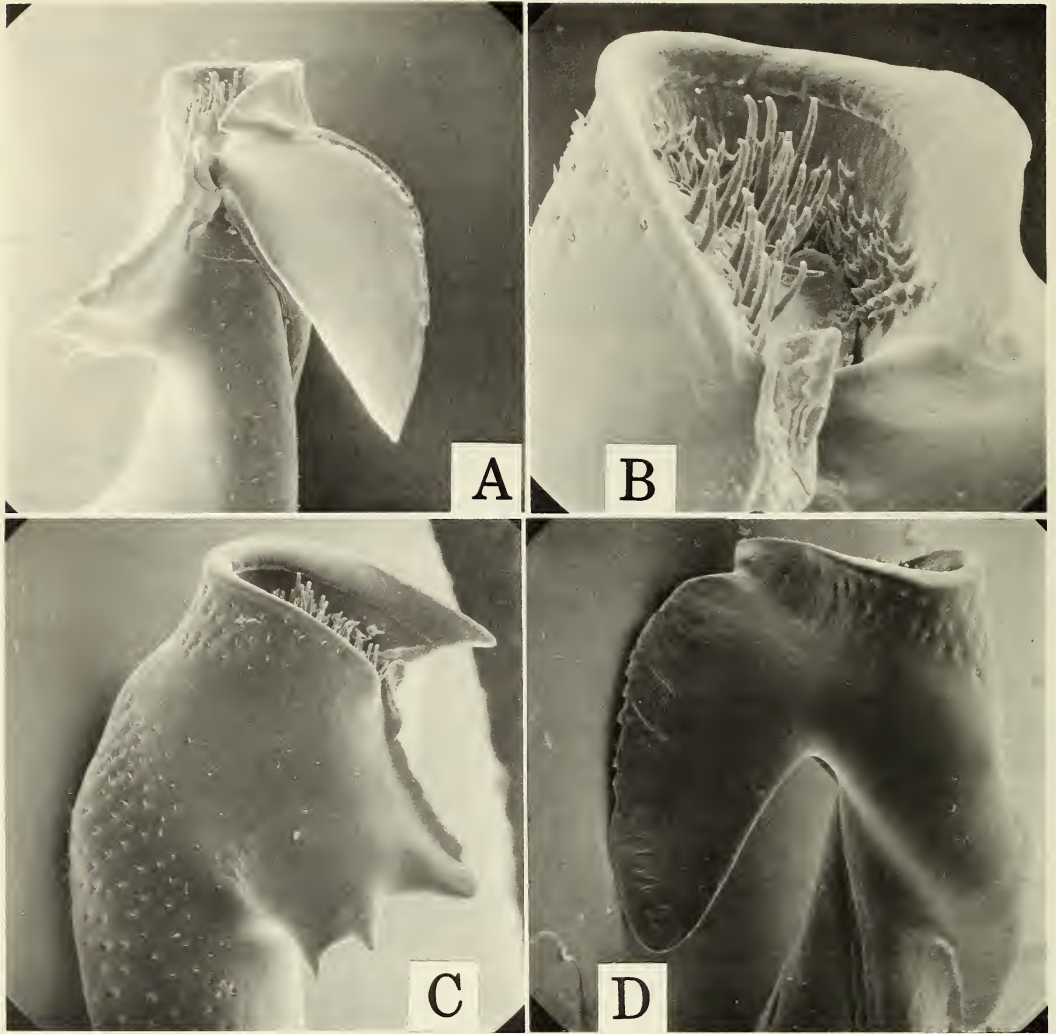


Fig. 1. *Pseudothelphusa mexicana*, holotype, left gonopod: A, Apical part, cephalic view, B, Detail of apex, cephalic; C, Lateral lobe; D, Mesial process.

duced to acute denticle as in *P. granatensis*. Apex of gonopod with oval cavity opening anteriorly and bearing 26 terminal pore setae. Internal border of cavity thicker than external one.

The terminology employed for the gonopod description is taken from Smalley (1964), and Smalley and Adkison (1984).

*Type*.—The holotypic male is deposited in the Carcinologic Collection, Instituto de Biología, UNAM (Catalog No. EM 3604).

*Type locality*.—La Jolla Cave, State of

Guerrero, Mexico (18°35'N, 99°34'W), 5 km northeast from Taxco by Highway 95, at an altitude of 1800 m. This cave was formed by chemical dissolution and always carries water in its deeper parts.

*Relationships*.—As stated by Rodriguez (1982), few external morphological characteristics within the pseudothelphusids have taxonomic value. The gonopod, however, provides the most important differentiation characters. The gonopod of *P. granatensis* (Rodriguez and Smalley 1969),

Table 1.—Measurements of width and length of carapace and fronto-orbital width, in mm.

Males			Females		
C.W.	C.L.	F.W.	C.W.	C.L.	F.W.
37.5*	23.1	21.8	29.5	18.2	17.1
21.0	12.9	13.2	36.0	21.8	21.1
26.6	17.0	16.3	33.0	19.7	19.0
24.0	13.3	14.3	36.2	21.4	21.2
27.2	16.3	17.0	36.0	22.0	20.5
33.2	19.4	19.4			

\* Holotypic male.

a crab which seems to be closely related to *P. mexicana*, has the following features: a) a well developed mesial process that ends in a rounded tip, b) a reduced lateral lobe with an upward projection that closes the apical cavity, and c) the exterior border of the cavity is higher than the inner one (fig. 16 in Rodriguez and Smalley 1969). In *P. mexicana* the mesial process is similar in shape and position but shorter; the lateral lobe emerges from the same region forming a blade which ends in three sharp tips; and the apical cavity is opened in the median front portion due to the separation between the lateral lobe and the superior lobe.

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#### Literature Cited

- Hobbs, H. H., H. H. Hobbs III, and M. A. Daniel. 1977. A review of the troglitic decapod crustaceans of the Americas.—Smithsonian Contributions to Zoology 244:1–183.
- Rioja, E. 1952. Estudios Carcinologicos XXVIII: Descripcion de un nuevo genero de Potamonidos cavernicolas y ciegos de la Cueva del Tio Ticho, Comitán, Chiapas.—Anales del Instituto de Biología, Universidad Nacional Autonoma de Mexico 23(1,2):217–225.
- Rodriguez, G. 1982. Les crabes d'eau douce d'Amérique. Famille des Pseudothelphusidae.—Office de la Recherche Scientifique et Technique Outre-Mer, Faune Tropicale 22:1–223.
- , and A. Smalley. 1969. Los cangrejos de agua dulce de México de la Familia Pseudothelphusidae (Crustacea: Brachyura).—Anales del Instituto de Biología, Universidad Nacional Autonoma de Mexico, Serie Ciencias del Mar y Limnologia 40:69–112.
- Smalley, A. E. 1964. A terminology for the gonopods of the American river crabs.—Systematic Zoology 13(1):28–31.
- , and D. L. Adkison. 1984. *Disparithelphusa pecki*, a new genus and species of freshwater crab from Mexico (Brachyura, Pseudothelphusidae).—Journal of Crustacean Biology 4(1):127–133.

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